

CHAPTER EIGHT

Transportation Element

Transportation Overview

According to the U.S. Census Bureau's 2000 Census Data, the City of Hartwell has an estimated population of 4,188 persons and is comprised of some 4.6 square miles. The density per square mile for this area is approximately 910.4 persons and 423.9 housing units. The estimated work-eligible population (16 years and over) is 1,663; of those individuals 1,372 are in the labor force.

In evaluating the transportation network of a community it is important to evaluate certain economic and social patterns that impact such infrastructure. For this reason, a list of relevant employment and commuting census data is listed in the tables below. These tables provide the reader with an understanding about the uses of the City of Hartwell's transportation network and the factors, which impact this network.

Table 8.1 provides a comparison between the City of Hartwell and statewide statistics for place of work for workers. It is important to recognize that the majority of Hartwell's working population (84%) remained inside the county while 10% worked outside the county. Interestingly, a rather significant number (6%) of the total eligible workers traveled outside of the state for work (mainly to South Carolina). This is likely because of Hartwell's close proximity to the state line and it's relatively close distance to Anderson, South Carolina. By knowing where people are working transportation planners are able to better understand traffic patterns.

Table 8.1

P26. PLACE OF WORK FOR WORKERS 16 YEARS AND OVER--STATE AND COUNTY LEVEL
[5] - Universe: Workers 16 years and over

	Georgia	City of Hartwell, Georgia
Total:	3,832,803	1,372
Worked in state of residence:	3,737,030	1,294
Worked in county of residence	2,240,758	1,153
Worked outside county of residence	1,496,272	141
Worked outside state of residence	95,773	78

U.S. Census Bureau
Census 2000

Furthermore, *Table 8.2* helps to define how people chose to travel to work. This table reflects the commute travel modes for the City of Hartwell. Not surprisingly, 93.3% of all working residents traveled to work by vehicle in 2000. Of those traveling to work by vehicle, 82.3% chose to drive alone while 17.7% chose to carpool, 2.8% chose to walk or ride a bicycle to work, 0.0% chose other means, and 0.00% rode a motorcycle. Oddly, public transportation also comprised 0% of the total traveling workforce. According to recent information Hart County does operate a Rural On-demand Transit Service; which does have regular rider-ship and provides some services within the City of Hartwell.

Table 8.2

P30. MEANS OF TRANSPORTATION TO WORK FOR WORKERS 16 YEARS AND OVER [16] - Universe: Workers 16 years and over

	Georgia	City of Hartwell, Georgia
Total:	3,832,803	1,372
Car, truck, or van:	3,525,972	1,280
Drove alone	2,968,910	1,054
Carpooled	557,062	226
Public transportation:	90,030	0
Bus or trolley bus	59,355	0
Streetcar or trolley car (publico in Puerto Rico)	843	0
Subway or elevated	20,116	0
Railroad	1,762	0
Ferryboat	382	0
Taxicab	7,572	0
Motorcycle	3,055	0
Bicycle	5,588	0
Walked	65,776	38
Other means	33,396	0
Worked at home	108,986	54

U.S. Census Bureau
Census 2000

Table 8.3 further defines the vehicle occupancy types for workers who chose to carpool. The average carpool for the City of Hartwell was 2 persons per vehicle. The data reveals that 69.9% were 2 person carpools, 26.1% were 3 person carpools, 2.7% were 4 person carpools, there were no 5 to 6 person carpools, nor 7 or more person carpools.

Table 8.3

P35. PRIVATE VEHICLE OCCUPANCY FOR WORKERS 16 YEARS AND OVER [10] - Universe: Workers 16 years and over

	Georgia	City of Hartwell, Georgia
Total:	3,832,803	1,372
Car, truck, or van:	3,525,972	1,280
Drove alone	2,968,910	1,054
Carpooled:	557,062	226
In 2-person carpool	406,954	158
In 3-person carpool	87,725	59
In 4-person carpool	34,505	9
In 5- or 6-person carpool	18,718	0
In 7-or-more-person carpool	9,160	0
Other means (including those who worked at home)	306,831	92

U.S. Census Bureau
Census 2000

Tables 8.4 and 8.5 provide a better understanding about the average trip length (time) for workers in the City of Hartwell. *Table 8.4* reveals that the average travel time for workers was somewhere between 5-15 minutes in length for those who didn't work at home. However, a significant amount of the population (8.9%) drove less than 5 minutes, 10.1% drove 15 to 19 minutes, 10.6% drove 20-29 minutes, 3.7% drove 30-39 minutes and 3.6% drove 40 to 59 minutes to work. The maximum travel time was 90 minutes or more, which comprised only 1.6% of the working population.

Table 8.4

P31. TRAVEL TIME TO WORK FOR WORKERS 16 YEARS AND OVER [15] - Universe: Workers 16 years and over

	Georgia	City of Hartwell, Georgia
Total:	3,832,803	1,372
Did not work at home:	3,723,817	1,318
Less than 5 minutes	93,446	117
5 to 9 minutes	334,403	456
10 to 14 minutes	511,628	348
15 to 19 minutes	583,820	133
20 to 24 minutes	519,875	76
25 to 29 minutes	209,374	63
30 to 34 minutes	535,531	38
35 to 39 minutes	108,867	10
40 to 44 minutes	132,121	7
45 to 59 minutes	347,610	41
60 to 89 minutes	234,588	8
90 or more minutes	112,554	21
Worked at home	108,986	54

U.S. Census Bureau

Census 2000

Table 8.5 breaks the travel time down further by observing the types of transportation utilized along with travel lengths. Some 90.5% of workers, traveling by non-public transportation means, spent less than 30 minutes traveling to work. Additionally 4.2% traveled 30-44 minutes, with the remaining 5.3 % of the population traveling 45 or more minutes.

Table 8.5

P32. TRAVEL TIME TO WORK BY MEANS OF TRANSPORTATION TO WORK FOR WORKERS 16 YEARS AND OVER WHO DID NOT WORK AT HOME [13] - Universe: Workers 16 years and over who did not work at home

	Georgia	City of Hartwell, Georgia
Total:	3,723,817	1,318
Less than 30 minutes:	2,252,546	1,193
Public transportation	25,868	0
Other means	2,226,678	1,193
30 to 44 minutes:	776,519	55
Public transportation	20,442	0
Other means	756,077	55
45 to 59 minutes:	347,610	41
Public transportation	13,742	0
Other means	333,868	41
60 or more minutes:	347,142	29
Public transportation	29,978	0
Other means	317,164	29

U.S. Census Bureau

Census 2000

Table 8.6 shows the various times workers leave their homes to travel to work. According to the data, the majority of workers left home between 6:30 and 8:30 A.M. in order to reach work on time. Therefore, the average weekday peak hours of travel would be between 6:30 and 8:30 in the morning (A.M.).

Table 8.6

**P34. TIME LEAVING HOME TO GO TO WORK FOR WORKERS 16 YEARS AND OVER [17] -
Universe: Workers 16 years and over**

	Georgia	City of Hartwell, Georgia
Total:	3,832,803	1,372
Did not work at home:	3,723,817	1,318
12:00 a.m. to 4:59 a.m.	108,019	46
5:00 a.m. to 5:29 a.m.	102,302	38
5:30 a.m. to 5:59 a.m.	156,682	32
6:00 a.m. to 6:29 a.m.	343,349	66
6:30 a.m. to 6:59 a.m.	422,728	222
7:00 a.m. to 7:29 a.m.	608,777	138
7:30 a.m. to 7:59 a.m.	610,869	228
8:00 a.m. to 8:29 a.m.	391,849	211
8:30 a.m. to 8:59 a.m.	187,692	63
9:00 a.m. to 9:59 a.m.	204,205	20
10:00 a.m. to 10:59 a.m.	79,927	14
11:00 a.m. to 11:59 a.m.	34,761	8
12:00 p.m. to 3:59 p.m.	219,434	111
4:00 p.m. to 11:59 p.m.	253,223	121
Worked at home	108,986	54

U.S. Census Bureau

Census 2000

Land Use and Transportation

The high reliance on vehicle use for mobility is to a large extent the result of the separation of land uses. Single-family subdivisions are located in the county in areas distant from employment and activity centers, leading to a greater reliance on vehicles and an increase in vehicle miles traveled, as has been noted in the previous section. Likewise, current housing opportunities within the City of Hartwell are not often located within a convenient walking distance to employment/activity centers, thus requiring vehicle use when public transit is not readily available. Working at home (i.e., home occupations) helps to reduce vehicle travel. Offering opportunities to walk to destinations also reduces vehicle dependency. The density and patterns of land usage has a major bearing on the modes and distances of travel.

The City of Hartwell recognizes the intrinsic relationship between Land use patterns/densities and travel patterns/behaviors. As a result, Hartwell's comprehensive plan supports mixed uses in the downtown central business district, and the mixing of office and commercial uses so that daily lunchtime trips are shortened, reduced, or completely eliminated.

A. INVENTORY & NEEDS ASSESSMENT

According to the University of Georgia's annual publication of *The Georgia County Guide 2004, 23rd Edition*, Hart County has approximately 676.80 miles of roadway. There is 92.29 miles of state route, 2.25 miles of interstate, 546.06 miles of county roads, and 38.45 miles of city streets that comprises Hart County's roadway network. The report indicates that these numbers represent a 1.7% increase since 1994. Of the total road mileage, 563.21 miles or 83.2 % is paved and 113.59 miles or 16.8 % is unpaved. This is an increase of 7.8% in the amount of paved mileage for the county since 1994. The GCG data further reveals that there are 27,092 registered vehicles and 17,106 licensed drivers in Hart County. These local drivers along with the countless number of visitors and tourists, who come to Hart County annually, traveled some 870,627 daily vehicle miles.

The Georgia Department of Transportation's annual 400-Series Reports for 2003, indicates that the City of Hartwell has approximately 41.51 miles of roadway. There is 6.64 miles of state route, 4.69 miles of county roads, and 30.18 miles of city streets that comprises Hartwell's roadway network. The report indicates that these numbers represent a 5.73% increase since 1990. Of the total road mileage, 41.21 miles or 99.3% is paved and 0.30 miles or 0.7% is unpaved. This is an increase of 5.53% in the amount of paved mileage for the city since 1990. The total daily vehicle miles traveled in the City of Hartwell for 2003 was 87,252 miles. This represents a 24.8% increase from 1990.

Currently, the City of Hartwell has no airport or transit system, and navigable waterway systems are restricted to the Lake Hartwell area on the fringes of town. Airport services are obtained through the Franklin-Hart County Airport, which is located in the City of Canon, Georgia. Hartwell receives transit services via a rural on-demand transit service (US DOT 5311- Rural Transit Program), which is owned and operated by the Hart County government. Sidewalks are available within the City of Hartwell, however some areas are in disrepair and/or need upgrading to more modern facilities. There is only one recreational pedestrian walking trail and one officially designated bike routes/trails within the City. Hartwell does have railroad access for freight movement, yet there is little to no activity on the system within the city limits.

Roadways

In order to determine the adequacy of a roadway system, it is necessary to inventory all road facilities according to how they fulfill two purposes: (1) movement of traffic, and (2) access to property. By evaluating the degree to which a particular roadway serves each of the two basic functions, a functional classification can be determined.

Functional Classification

Functional classification is the process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide. Basic to this process is the recognition that individual roads and streets do not serve travel independently in any major way. Rather, most travel involves movement through a network of roads. It becomes necessary then to determine how this travel can be channelized within the network in a logical and efficient manner. Functional classification defines the nature of this channelization process by defining the part that any particular road or street should play in serving the flow of trips through a roadway network. Functional classification is routinely used for planning roadway system development, determining the jurisdictional responsibility for particular systems, and fiscal planning. Therefore, understanding the function of a road is critical to the transportation planning process. The parameters established by a road systems function will greatly impact the need for future improvements to the system.

The U.S. Department of Transportation (USDOT) and the Federal Highway Administration (FHWA) have identified 11 different types of Functional Classifications in the United States. Each individual State's designated Transportation Agency is responsible for the classification of all roads in the public road system. In Georgia, this responsibility belongs to the Department of Transportation (GDOT). *Table 8.7*, shown below, identifies the different types of classifications used for roadways in Georgia.

**Table 8.7
Types of Functional Classifications**

Key For Functional Classification	Stands For
IPA	Interstate Principal Arterial
PAR	Principal Arterial- Rural
MAR	Minor Arterial- Rural
MCR	Major Collector- Rural
NMC	Minor Collector- Rural
LOC	Local- Rural
UFY	Freeway- Urban
UPA	Principal Arterial- Urban
MAS	Minor Arterial- Urban
CST	Collector Street- Urban
LOU	Local- Urban

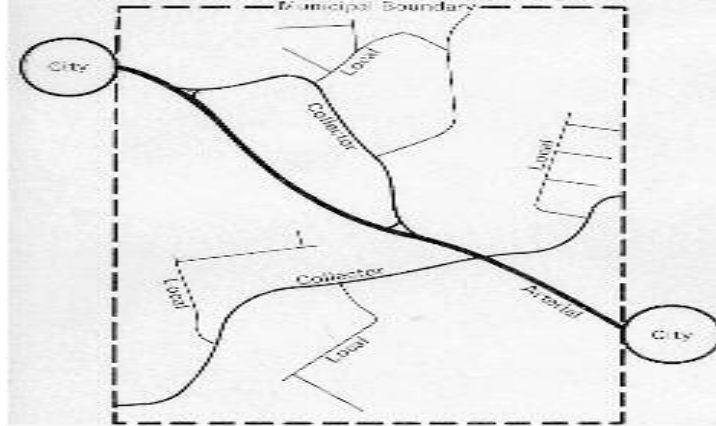
Source: GDOT, Office of Transportation Data

(Note: For the purpose of this document, only rural classifications are relevant to City of Hartwell.)

Generally, most roadways fall into one of four broader categories-- *principal arterial*, *minor arterials*, *collector roads*, and *local roads*. **Arterials** provide longer through travel between major trip generators (larger cities, recreational areas, etc.); and **collector** roads collect traffic from the local roads and also connect smaller cities and towns with

each other and to the arterials; finally, **local** roads provide access to private property or low volume public facilities. *Figure 8.1* below, shows a diagram map of these four categories.

Figure 8.1: *Illustrates Functional Classification Categories*



Arterial Roadways

Generally, the primary function of an arterial roadway is to move traffic thru a defined region or corridor. The most common rural arterial systems are Interstate facilities. These roadways typically provide limited access to the facility and carry large volumes of traffic at higher speeds. Within municipal boundaries and in some rural non-municipal areas, these systems may provide limited access to cross streets and driveways to private property. There are two different types of arterial roadways: principal (major) arterials and minor arterials.

Principal (major) arterials serve major activity centers and major corridors within a community or defined area and typically have the highest traffic volumes. These roadways carry a large proportion of trips with origins and destinations within the surrounding region. They also serve to move thru-traffic into and out of the region or area by connecting them to other communities. These roadways may provide access to private property or be a controlled access facility. Typically, these facilities have 100 to 200 feet right-of-way, four or more lanes, and may be divided by a median or some type of barrier. Speeds are generally high- ranging from 45 mph to 70 mph. Interstates and freeways are the best example of such road systems.

Minor arterials are often classified as streets and highways (non-interstate or freeways) that interconnect with and compliment the principal (major) arterials. These roadways serve trips of moderate length and emphasize more land access than major arterial roads. Minor arterials usually have 80 to 120 feet of right-of-way and have wide intersections with turn lanes. These roadways may have up to five lanes of traffic. However, most facilities in rural areas are two lanes. Speed limits are moderately high- ranging between 45-65 mph. Most State Routes typically fall into this category. The rural minor arterial

road system should, in conjunction with the principal arterial system, form a rural network having the following characteristics:

- ③ Link cities and towns (and other traffic generators, such as major resort areas, that are capable of attracting travel over similarly long distances) and form an integrated network providing interstate and inter-county service.
- ③ Be spaced at such intervals, consistent with population density, so that all developed areas of the State are within a reasonable distance of an arterial highway.
- ③ Provide (because of the two characteristics defined immediately above) service to corridors with trip lengths and travel density greater than those predominantly served by rural collector or local systems. Minor arterials therefore constitute routes whose design should be expected to provide for relatively high overall travel speeds, with minimum interference to thru movement.

Figure 8.2:
*Illustrates
Rural Arterial
Characteristics*

***Characteristics of Arterial
Highways Summary***

- 1. Long Distance**
- 2. Higher Speeds**
- 3. Higher Volumes of traffic – Multilane Facilities**
- 4. Interstate Travel - Interstate System**
- 5. Links Major Cities**
- 6. Statewide and Inter-county Travel**
- 7. Area Service Coverage**

According to the most recent data available for the City of Hartwell, there are portions of two roadways that are classified as arterial roads. All are classified as Minor Arterials. There are no roads classified as principal arterials or major roadways. Below you will find a break down of these roadways and their assigned class:

- 🕒 **Principal Arterials (PAR)**
 - *None*
- 🕒 **Minor Arterials (MAR)**
 - *SR 8/Franklin and Athens Streets*
 - *SR 77/Benson and Howell Streets*

Collector Roadways

The primary purpose of a collector road is to collect traffic from other roadways in commercial and residential areas and then distribute that traffic onto arterial road systems. Some collector roads serve thru-traffic as well as local traffic, which accesses nearby destinations. Essentially, collectors are designed to provide a greater balance between mobility and land access within residential, commercial, and industrial areas. The makeup of a collector facility is largely dependent upon the density, size, and type of abutting developments. Additionally, due to the emphasis on balancing between mobility and access, a collector facility is better designed to accommodate bicycle and pedestrian activity while still serving the needs of the motoring public.

Collectors typically have 60-100 feet right-of-ways and two to four travel lanes. Collectors intersect with cross-streets and driveways more frequently than arterial systems. Speeds and traffic volumes along these roadways are moderate. Posted speed limits are generally between 30-55 mph.

There are two types of Collectors: major collectors and minor collectors- although there are only slight differences between the two.

Major Collector routes should: (1) Provide service to any county seat not on an arterial route, to larger towns not directly served by the higher systems, and to other traffic generators of equivalent intra-county importance, such as consolidated schools, shipping points, county parks, important mining and agricultural areas, etc.; (2) link these places with nearby larger towns or cities, or with routes of higher classification; and (3) serve the more important intra-county travel corridors. There are three Major Collector roads (MCRs) in the City of Hartwell:

- ***SR 51/Chandler Street***
- ***SR 172/Webb Street***
- ***CR 502 Forest Avenue & Vickory Street***

Minor Collector routes should: (1) Be spaced at intervals, consistent with population density, to collect traffic from local roads and bring all developed areas within a reasonable distance of a collector road; (2) provide service to the remaining smaller communities; and (3) link the locally important traffic generators. Currently, there are no Minor Collector Roads (NMCs) within the City of Hartwell.

Figure 8.3:
*Illustrates
Rural Collector
Characteristics*

**Characteristics of Collector
Highways Summary**

- 1. Shorter Trips**
- 2. Moderate Speeds**
- 3. Lower Volumes of Traffic - Two Lane Facilities**
- 4. Intra-county Travel**
- 5. Serves:**
 - a. County Seats**
 - b. Larger Towns not on Higher System**
 - c. Consolidated Schools**
 - d. Shipping Points**
 - e. Larger Manufacturing Areas**

Local Roadways

Local roadways, because of their design features, are influenced less by traffic volumes and are tailored to provide more local access and community livability. Mobility on local facilities is typically incidental and involves relatively short trips at lower speeds to and from collector facilities. They are designed for neighborhood environments. This "neighborhood" nature requires travel speeds to be generally lower than collectors and arterials. Posted speed limits on local city streets generally range between 15 and 35 mph, depending on available right-of-way and the adjacent land uses. Local county roads are generally posted between 30-55 mph. Traffic volumes on local streets are generally less than 5,000 vehicles per day, and often vary depending on available right-of-way and the adjacent land uses.

Pedestrian and bicycle safety and aesthetics are generally high priorities on local road systems in and around residential and commercial areas. Wider travel lanes and broader turning radii, to accommodate larger vehicle sizes, are major considerations on local streets in industrial/commercial areas.

The rural local road system should have the following characteristics: (1) Serve primarily to provide access to adjacent land; and (2) provide service to travel over relatively short distances as compared to collectors or other higher systems. Local roads will, of course, constitute the rural mileage not classified as part of the principal arterial, minor arterial, or collector systems.

Figure 8.4:
Illustrates
Rural Local
Characteristics

**Characteristics of
Rural Local Highways Summary**

- 1. Adjacent Land is Primary Function**
- 2. Shortest distances**
- 3. Low Speeds**
- 4. Low Volumes**
- 5. Roads not Falling in Higher Systems**

Road System Inventory

The majority of all roadways in the City of Hartwell are functionally classified as local roads. Hartwell's remaining roadways are classified respectively as follows: major collectors- rural; minor collectors- rural; minor arterials- rural; and principal arterials- rural. *Table 8.8* indicates the major road inventory for the City of Hartwell with corresponding classifications, number of lanes, and agency jurisdiction/responsibility.

Table 8.8
Major Road Inventory By Functional Classification,
Number of Lanes, and Jurisdiction-
City of Hartwell

Road Number	Name of Roadway	Descriptions (From/To)	Functional Classification	Number of Lanes	Jurisdiction
SR 8	Franklin & Athens Streets	City limits to City limits	Major Arterial (MAR)	2	State
SR 51	Chandler Street	City limits to City limits	Major Collector (MCR)	2	State
SR 77	Benson & Howell Streets	City limits to City limits	Major Arterial (MAR)	2	State
SR 172	Webb Street	City limits to SR 77	Major Collector (MCR)	2	State
CR 502	Forest Avenue & Vickory Street	From Opal Ext to SR 51	Major Collector (MCR)	2	Local
CS ???	Johnson Street		Local Road (LOC)	2	Local
CR ???	Ridge Road		Local Road (LOC)	2	Local
CS ???	Fairview Avenue		Local Road (LOC)	2	Local

Source: Compiled by Georgia Mountains RDC based on data from GDOT, 2003.

Traffic Counts

Table 8.9 provides the most current traffic counts available for the City of Hartwell. Annual Average Daily Traffic (AADT) is the total volume on a roadway segment for one year divided by the number of days in the year. The AADT estimates are shown on the AADT MAP. All traffic count data is provide by the Georgia Department of Transportation and generated using data elements contained in the MTPT evaluation conducted during this study. For further details refer to *Appendix A*.

**Table 8.9
2002 Traffic Counts
Major Roads in City of Hartwell**

Road Number	Road Name	F.C.	AADT
SR 8	Franklin & Athens Streets	MAR	19,400
SR 51	Chandler Street	MCR	9,600
SR 77	Benson & Howell Streets	MAR	7,100
SR 172	Webb Street	MCR	3,900
CR 502	Forest Avenue & Vickory Street	MCR	4,900

Source: Compiled by Georgia Mountains RDC based on Data from GDOT.

When comparing AADT data it must be understood that traffic counts vary considerably from day to day, season to season, and year to year. Certain environmental factors and social patterns such as days of the week, different seasons of the year, weather, special events, and other anomalies can all have an impact on the raw data that is collected and the averages, which result for them. For the reason, FHWA and GDOT have established control factors, which help to account for and “factor-out” these anomalies. Thus, GDOT is able to reduce the probability of generating faulty data.

Levels of Service

The Florida Department of Transportation’s Quality/Level of Service Handbook, 2002 Edition best defines Level of Service (LOS) as “a quantitative stratification of the quality of service” for a segment of or an entire roadway. Quality of Service (QOS), likewise, is defined as “a traveler-based perception of how well a transportation service or facility operates.” In more simple terms, Level of Service (LOS) is a measurement of how well a roadway segment or intersection operates. There are six levels involved in such evaluations. These quantitative stratifications are represented as alphabet characters and range from A (best) to F (worst), and each letter represents a capacity of service based upon established characteristics and average travel speeds (ATS). Florida’s Q/LOS

Handbook's Rural Undeveloped and Rural Developed characteristics best describe the typical roadways in the City of Hartwell. Thus, these were applied during the evaluation process for the purpose of this document. *Table 8.10*, provides a listing of the LOS thresholds, which were used for the evaluation of services. The more uniform, 2000 Highway Capacity Manual (HCM 2000) characteristics are more applicable to Urbanized area and do not take into account the rural factors which impact the City of Hartwell, and thus were not utilized for this analysis.

**Table 8.10
Rural Levels of Service (LOS) Thresholds**

<i>LOS</i>	<i>2-lane Hwy (ru) v/c</i>	<i>2-lane Hwy (rd) % FFS</i>	<i>Multilane Hwy (ru) v/c</i>	<i>Multilane Hwy (rd) v/c</i>	<i>Arterials ATS</i>	<i>Intersections/ Non-State Signalized Control Delay</i>
<i>A</i>	≤ 0.34	≤ 0.34	≤ 0.34	≤ 0.34	$> 42 \text{ mph}$	$\leq 5 \text{ sec}$
<i>B</i>	≤ 0.34	≤ 0.34	≤ 0.34	≤ 0.34	$> 34 \text{ mph}$	$\leq 10 \text{ sec}$
<i>C</i>	≤ 0.34	≤ 0.34	≤ 0.34	≤ 0.34	$> 27 \text{ mph}$	$\leq 20 \text{ sec}$
<i>D</i>	≤ 0.34	≤ 0.34	≤ 0.34	≤ 0.34	$> 21 \text{ mph}$	$\leq 30 \text{ sec}$
<i>E</i>	≤ 0.34	≤ 0.34	≤ 0.34	≤ 0.34	$> 16 \text{ mph}$	$\leq 40 \text{ sec}$
<i>F</i>	≤ 0.34	≤ 0.34	≤ 0.34	≤ 0.34	$\leq 16 \text{ mph}$	$> 40 \text{ sec}$

Source: Florida Department of Transportation's 2002 *Quality/Level of Service Handbook*

v/c = Demand Capacity Ratio % FFS = Percent Free Flow Speed
ATS = Average Travel Speed ru = rural undeveloped rd = rural developed

The City of Hartwell desires to maintain an overall level of service (LOS) of "D" or better for all major roadways within the system, with an optimal LOS of "C" or better. An analysis of the network reveals that most roadways exceed this standard, however, there are a few that fall below the desired LOS. *Table 8.11*, below, provides an overview of the LOS Analysis and recommendations for action for the major roadways inventoried under this plan. For a detailed analysis for these facilities, as well as for all local roadways evaluated for the City of Hartwell, please refer to *Appendix A*.

**Table 8.11
Levels of Service and Required Actions
for Major Roads in City of Hartwell**

Road Number	Road Name	F.C.	Current LOS	10 Yr LOS	20 Yr LOS	Action Required
SR 8	Franklin & Athens Streets	MAR	D,E,F	~	~	N
SR 51	Chandler Street	MCR	B,C,D	B,D,~	D,~	N,M,L
SR 77	Benson & Howell Streets	MAR	C,D	~	~	N
SR 172	Webb Street	MCR	B	B/C	D,E	L
CR 502	Forest Avenue & Vickory Street	MCR	B,C	B,C,D	D,E,~	M,L

Source: Compiled by Georgia Mountains RDC based on data from GDOT, 2003.

Action Key: X= No Action; I= Immediate Action; N= Near Term; M= Medium Term; and L= Long Term

*****Note:** *Each roadway has been evaluated in segments, which results in multiple LOS ratings for the same road. Because of the vast differences between the LOS for each road segment, the author has presented multiple LOS ratings rather than averaging the total number of LOS for each road. It was feared that listing a single LOS would skew the LOS results- thus providing an inaccurate evaluation of the roads performance.*

System Deficiencies

As discussed in the previous Levels of Service section, a number of roadways were identified as exceeding the thresholds for LOS. There are numerous road segments that are currently failing or will be failing in the very near future (LOS “E”, “F”, or “~”). Additionally, there are several road segments that have or will be breaching the thresholds over the period covered under this document.

Existing Conditions

Currently, most road systems within Hartwell’s road network operate at a Level of Service (LOS) rating of “C” or better. There are however several roads which operate at unacceptable Levels of Service. SR 8/Franklin and Athens Streets has a current LOS rating of “D”, “E”, and “F” through town. SR 51/Chandler Street from SR 8/Franklin Street north to West Johnson Street operates at an LOS “D”. SR 77/Howell Street from the west City limits to SR 8/Athens Street operates at an LOS “D” and SR 77/Benson Street from Howell Street south to the City limits also operates at an LOS “D”. SR 172/Webb Street and CR 502/Forest Avenue & Vickory Street both function at an LOS rating “C” or better. All other roads operate at an LOS rating “B” or better.

10-Year Projections

During the 10-year traffic forecast, SR 8/Franklin & Athens Streets continue to deteriorate throughout town. SR 51/Chandler Street deteriorates in sections to LOS “D” or below. Likewise, SR 77/Benson & Howell Streets deteriorates to LOS “D” or below. SR 172/Webb Street maintains LOS rating “B” in some areas but drops to LOS rating “C” in others. CR 502/Forest Avenue & Vickory Street continues to maintain an LOS rating of “C” or better in most areas but falls to an LOS “D” from SR 8/Franklin Street north to Banks Street. All remaining roadways maintain an LOS rating of “C” or better.

20-Year Projections

During the 20-year traffic forecast, LOS ratings drop significantly for SR 51, SR 172, and CR 502. SR 51/Chandler Street north of SR 8 drops to an LOS rating “D” and below for its entire length through town. SR 172/Webb Street drops to LOS “D” and below for its entire length through town. CR 502/Forest Avenue & Vickory Street drops to LOS “D” or below for its entire route. Both SR 8 and SR 77 continue to deteriorate and congestion mounts. All remaining roadways maintain an LOS rating of “C” or better.

Roadway Improvements

As previously mentioned under *Table 8.11*, the system analysis for the City of Hartwell evaluated the road network for needed improvements and identified several roadways, which required either minor or major improvements. These recommended improvements were listed as being needed immediately or in the near, medium, or long term range in order to meet the established Level of Service goals for the county. Minor improvements are defined as facility improvements such as road widening of the average lane width up to 12-feet and shoulder widths up to 6 feet. Major improvements are defined as facility improvements with additions of: (1) a passing lane for two-lane facilities; and/or (2) one or more additional lane(s) in each direction (total of two more lanes) if a multilane or freeway facility.

Both major and minor improvements were identified as being needed for the following roadways:

- ☞ SR 8/Franklin & Athens Streets
- ☞ SR 51/Chandler Street
- ☞ SR 77/Benson & Howell Streets
- ☞ SR 172/Webb Street
- ☞ CR 502/Forest Avenue & Vickory Street

For a complete list of recommendations and associated costs please refer to *Appendix A* of this document.

Surface Conditions

Beyond the basic safety condition of the roadway, the City of Hartwell should provide street surfaces on which drivers are comfortable. Street “ride-ability” (surface condition) can be rated using trained observer ratings or by mechanical roughness measuring devices. For instance, the visual rating scale provided in *Table 8.12* could be applied from an automobile:

**Table 8.12
Rating Scale for Street Ride-ability**

Condition	Description
1	Smooth
2	Slightly Bumpy
3	Considerably Bumpy
4	Severe jolt or potential safety hazard

Source: Hatry et al. 1992

Pavement Maintenance and Resurfacing

The maintenance of local roads is often ignored or under-funded by many local governments. Maintenance costs of the local road system tend to mount, and the problems increase when local officials defer maintenance for “just one more year.” The City of Hartwell needs to know when to carry out road maintenance and rehabilitation projects to upkeep the local road system. If improvements are not conducted in a timely manner when needed, the quality of local roads decreases and the cost to repair or rehabilitate the roads increase. For instance, it costs more to rehabilitate a road if the City delays until a street is in very poor condition (Bailey et al. 1986). Also, the cost escalates three, four, or five times higher each time the project is delayed. For this reason, a pavement maintenance system is desirable; such systems are available to most local governments at a reasonable cost.

Surface treatment, crack filling, and pothole filling are a routine part of a pavement management program. Surface treatment consists of a thin coating of asphalt with stone chips rolled in; this treatment will give a five-year life under moderate traffic conditions. Crack filling is needed to prevent water from entering the base and weakening the street. Proper crack filling requires a “sufficient depth of a compressible, expandable asphalt-based material that adheres thoroughly to the sides of the crack” (Bailey et al. 1986). The city’s pavement maintenance program should also included correction of any soft spot locations (weak base) and the routine filling of potholes.

Bridges

The City of Hartwell currently has no locally owned structures that meet the state qualification to be classified as bridge/culvert structures. There are no known bridges/culverts owned by other government entities within the city limits.

It must be noted that more bridge/culvert structures exist throughout City of Hartwell. There are privately owned structures and other structures that may be considered bridges/culverts. However, these structures do not meet the established criteria to be classified under the state law of what is considered to be a “bridge structure,” therefore they are excluded from consideration. Additionally, there are several bridges that are owned and maintained exclusively by the state. All routine inspections are conducted on a two-year schedule and performed by certified bridge inspectors of the Georgia Department of Transportation. The City of Hartwell receives a report from GDOT at the end of each cycle, which details the status of each structure. Hartwell and GDOT work cooperatively to ensure that necessary bridge repairs are conducted. These work projects are scheduled into the Georgia Statewide Transportation Improvement Program. This program establishes funds to cover the expenses for federal aid and state aid projects.

Signal Warrants and Traffic Control

Currently there are no local owned and operated traffic signals other than stop signs located within the planning area. All signalized intersections within the City limits are located along state routes and are exclusively owned and operated by the Georgia Department of Transportation. For a locations of and Levels of Services these intersections please see the attached Intersection LOS Map.

All traffic signals at intersection with state routes are owned and maintained by the Georgia Department of Transportation. Traffic controls are generally required to conform to the standards and guidelines established under the Manual of Uniform Traffic Control Devices for Streets and Highways. Any future additions in traffic signals, which may become necessary during the planning horizon (determined by a signal warrant), will most likely occur at intersections of state routes and local roads, thereby becoming GDOT's responsibility.

Roadway Signage

All road signs are erected in accordance with the Georgia Manual on Uniform Traffic Control Devices for Streets and Highways. Requirements for signage depend on whether they are erected on conventional roads, expressways, or freeways. The Georgia Department of Transportation is responsible for signage in the rights-of-ways of all state routes. The location and composition of the City of Hartwell's signage meet applicable specifications.

Street Lighting

The City needs knowledge about where the greatest street lighting needs are before it can improve the current street lighting system. Total annual cost of operation is an important consideration in determining whether to provide nighttime visibility via street lighting. The necessary visibility will vary depending on the classification of the roadway. Streetlights should be required to conform to construction standards and specifications for light levels, glare reductions, uniformity, and color.

Accident Data and Safety Hazards

Traffic accident data for the City of Hartwell was available through the Georgia Department of Transportation using the MTPT software. This program utilizes the most recent data (1997) available for use according to GDOT. For further information about locations, frequency, and crash zones please refer to attached Accident Maps. The Hart County Sheriff's Department was contacted for more recent data however such data was not available at the time of this document.

Traffic Accidents can happen for a variety of reasons, but those resulting from physical upkeep or maintenance of roads can include street surface condition (e.g., potholes, severe bumps, drainage problems, etc.), traffic controls being absent or not visible, and view obstructions. Data on the various causes of accidents have not been compiled here. Other data suggests that most accidents occur during the hours of 7 a.m. and 5 p.m.

Public Transit

Currently, the City of Hartwell is serviced by the Hart County Dial-a-Ride Service Program (US DOT 5311 Rural Transit Service), which includes a demand-response system with a typical 24-hour advance service request. Operational hours are from 8 am to 4:30 pm, Monday thru Friday with some after-hours, special events, & emergency trip demand services. The program operates two buses within the county and runs an average of 6 to 11 trips per day. Program officials estimate that 60% of their current cliental is elderly (over 65 years). The remaining transit users are low-income or DFACS clients. The program is also handicap accessible.

The program's current operational status appears to be adequate to meet the basic needs of the community. There are, however, future plans to expand the services where possible as rider-ship/demand increases. Additionally, there are plans to evaluate the needs for connectivity into surrounding communities as a means of increasing rider-ship. Program officials have also indicated a desire to expand the services to include a fixed-route system for the community in an effort to increase effectiveness in services.

Airports and Air Transportation

The City of Hartwell does not have an airport facility and is currently serviced by the Franklin-Hart County Airport located in Canon, GA. The airport is owned and operated by the Franklin and Hart Counties and thus fall outside the scope of this document. There are no plans to establish an airport facility within the city limits of Hartwell.

Parking Facilities

Over the years, on-street parking has been a vital issue for the city's central business district. Currently the city owns and operates 331 on-street parking spaces. The City of also owns and operates two parking facilities. They are located in empty lots off SR8/Franklin Street. One is located across from the existing courthouse between the post office and Forest Avenue and the other is located on the west side of Carolina Street between Franklin Street and Johnson Street. In addition, it utilize a third parking facility, privately owned by the Hartwell First Baptist Church, is utilized for the purpose of providing a park-and-ride facility for carpooling jurors during Court operation hours. These facilities are sufficient to meet the bare minimum service needs for all government/public facilities at this time. At this time there are discussion and/or plans to construct additional parking areas or facilities; possibly a larger parking deck to better accommodate current and future demands. The city recognizes that businesses, residents and visitors rely on these facilities heavily for accessing the downtown business district and values their desires to have safe, convenient parking within the city. Therefore, as future growth and expansion occurs the city will continue to actively and aggressively

address related parking needs and provide the necessary resources to maintain adequate parking within the city.

Pedestrian Pathways: Sidewalks and Recreational Trails

Currently, the City of Hartwell owns and maintains numerous pedestrian facilities located throughout town. The City recognizes the intrinsic value of these facilities and as a result has developed a Community Master Plan for improving pedestrian access and aesthetics within the city limits. For location of these facilities please refer to the Existing Sidewalks Map on the following page. Other sidewalks may exist within the City of Hartwell, however, they are privately owned and maintained, and therefore, they are outside the scope of this documents evaluation.

Pedestrian Facility Recommendations

Whether performing improvements to existing sidewalks or designing new pedestrian facilities, efforts should be made to create a pleasant and safe walking experience for all users. The following recommendations are made to help in achieving this goal.

Existing Sidewalks

Sidewalks throughout the planning area should be in compliance with the Americans with Disabilities Act (ADA). Adequate curb cuts and railings (if necessary) should be installed. Repairs to cracked and deteriorating concrete should be made on a regular basis. Children and older adults are often the largest users of sidewalks. This group of pedestrians may have mobility issues that would be made more difficult by uneven pavement. For safety, sidewalks should be in good condition.

In making repairs to existing sidewalks, care should be taken if historic paving materials are present. Many of the communities within the Georgia Mountains region have sidewalks built with hexagonal pavers. These pavers may be a character-defining element of a historic district and should be carefully repaired and preserved in place. Historic commercial buildings often have small ceramic tiles at the recessed entrances of stores that abut the sidewalk. When repairing or replacing sidewalks, these historic tile entrances should not be disturbed.

When existing sidewalks are in need of major repair or where a road project requires sidewalk reconstruction, every attempt should be made to improve sidewalks with a planting strip between the road and sidewalk. Planting strips that separate pedestrians from vehicular traffic are widely accepted as a way of helping pedestrians feel safer and more comfortable. The design of planting strips depends largely on the volume and speeds of traffic and whether or not on-street parking exists. GDOT has several recommendations for planting strip designs and should be consulted when the time comes to make improvements to sidewalks.

New Sidewalks

Building new sidewalks is the second, but equally important, priority for pedestrian facility enhancements. When making recommendations for new sidewalks, first priority is to link existing sidewalk sections with new sidewalks. This creates a continuous sidewalk path and reduces the need for pedestrians to cross the street or walk on roadways. In general, this is necessary in city centers where sidewalks may have been built in stages or as part of the construction of a building site.

New sidewalks should extend existing sidewalks to local schools, parks, recreation centers, institutions, and commercial activity nodes. GDOT recommends that, whenever possible, sidewalks should be located on both sides of the street. Where sidewalks have not previously existed, constructing sidewalks on one side of the street is acceptable for the short-term. As with improvements to existing sidewalks, new sidewalks should be ADA accessible and have a planting strip.

It is recommended that subdivision regulations for sidewalks meet the same standards as city and county sidewalks to include planting strips and ADA compatibility. In addition, subdivision sidewalks should link to public sidewalks to provide a continuous path.

When building new sidewalks in listed or eligible historic districts, a preservation professional should be consulted to identify significant landscape elements that should not be altered. New sidewalks are compatible with historic districts when done sensitively. Planners may want to recommend incorporating appropriate historic paving materials into the design of a new sidewalk.

Pedestrian amenities such as street furniture and lighting improve the quality of the pedestrian experience. Street furniture includes benches, trash receptacles, bike racks and newspaper boxes. The installation of these items should be carefully planned to allow for the uninterrupted flow of traffic. Too much street furniture creates clutter and maintenance issues that can be a nuisance for the pedestrian. It is recommended that street furniture be clustered in areas that receive at least a moderate amount of foot traffic and out of the path of pedestrians. National standards have been established for the minimum space requirements for street furnishings. These standards should be consulted when planning new streetscapes. GDOT can also assist local governments in this regard.

Proper lighting for pedestrians is an important safety consideration. Most urban areas have adequate lighting in place. For pedestrian purposes it is recommended that lighting fixtures be shorter than typical street lighting. Generally, lighting fixtures for pedestrians should not exceed 15-feet. Care should also be taken to choose lighting fixture styles that are appropriate to the character of the neighborhood. Overly stylistic lights would not typically be appropriate for historic rural communities such as the City of Hartwell. Simple contemporary fixtures are often more compatible. Lighting fixtures should be directed toward the sidewalk area and not upward. Light that is pointed at the sky creates

a glow that can hamper the vision of pedestrians and cyclists. In addition, it becomes necessary to add more lighting, which raises the cost. It is recommended that light fixtures be positioned for maximum effectiveness, thereby increasing the quality of the pedestrian experience and decreasing the cost to the community and the negative impacts of environmental or light pollution.

Other Alternate Mode Recommendations

Some types of facilities, such as multi-use trails and scenic highways, encourage use by more than one mode of travel. Because multi-modal use creates the need for some additional considerations, some further recommendations are mentioned below.

Multi-use Trails and Paths

Multi-use trails are off-road paved (either pervious or impervious) trails that are shared by pedestrians and cyclists and used for other activities such as horseback riding. These trails are usually considered to be recreational, but people also use short segments for daily activities when they are located near commercial activity centers. GDOT recommends that multi-use shared paths be 10-feet in width, at a minimum. However, a 12-foot or more width offers greater comfort for users. These trails are popular with both locals and tourists. As an example, the Silver Comet Trail in Georgia currently has 38 miles of shared trails with plans for a total of 51 miles. Eventually the trail will connect with the Chief Ladiga Trail in Alabama to cover 101 miles from Atlanta to Anniston, Alabama.

Bicycle Travel

Bicycle users have various levels of expertise, which makes different types of facilities more desirable. Cyclists are typically separated into three groups: Type A, Type B and Type C. These types are described in the AASHTO Guide for the Development of Bicycle Facilities as follows:

- Type A Cyclists: Advanced or experienced riders who generally use their bicycles as they would a motor vehicle.
- Type B Cyclists: Basic or less confident adult riders who may also be using their bicycles for transportation purposes, e.g. to get to the store or visit friends, but prefer to avoid roads with fast or busy motor vehicle traffic unless there is ample roadway width to allow easy overtaking by the faster traveling motor vehicle.
- Type C Cyclists: Children, riding on their own or with parents, who may not travel as fast as their adult counterparts but still require access to key destinations in their community, such as schools, convenience stores and recreation facilities.

Cyclists desire safe routes to go to work and school, complete errands, and ride for health and recreational reasons. Cyclists are also discouraged from riding on sidewalks, which can create safety hazards for pedestrians. In order to provide safe and attractive routes for cyclists, bike routes should be recommended for local designation. There are several

acceptable ways to delineate a bikeway. These different types depend greatly on the volume and speed of traffic and are typically chosen during the design phase of the bikeway project.

For the purposes of future guidance for appropriate bikeway selection, the types of bikeways will be discussed. Bicycle facilities have four basic types (three on-road facilities and one off-road facility) that are described in more detail below. In addition, recommendations from a study for the Pedestrian and Bicycle Information Center completed in August 2002 titled “Bicycle Facility Selection: A Comparison of Approaches” will be summarized. For further information on bicycle facilities, the following sources can be consulted:

- Georgia Bicycle and Pedestrian Plan, Georgia Department of Transportation;
- Pedestrian and Bicycle Information Center;
- Federal Highway Administration (FHWA), and
- American Association of State Highway and Transportation Officials (AASHTO).

The simplest type of bikeway is a paved shoulder. Especially in rural areas, AASHTO suggests that paved shoulders of a four-foot width minimum can act as a bicycle facility. GDOT has guidelines available for signing a bike route. It is recommended that all routes, whether they are a paved shoulder or striped bike lane, be signed. Type A cyclists are typically comfortable with this type of bikeway, but Type B and Type C cyclists may not prefer it.

The next level of bikeway is a wide outside lane or shared lane. As the name suggests, bicyclists share the outside lane of traffic with motorists. Generally the minimum width of an outside lane must be 14-feet and should not include the gutter pan. It is acceptable to reduce the width of an interior lane of traffic in order to provide for a wider outside lane according to AASHTO. This allows for safer bicycle travel without widening the roadway.

The final on-road bikeway is the bike lane. A bike lane is a striped separate lane designated solely for bicycles. A minimum four-foot wide lane is acceptable for lanes with no curb, gutter or parking. A minimum of five-feet is necessary for lanes that are adjacent to parking. In some situations where bicyclists must share the lane with parallel parking areas, a minimum of 11-feet is necessary for lanes with no curb and 12-feet for lanes with a curb face. Bike lanes require a solid white line stripe to separate it from vehicular traffic.

An additional off-road bikeway is a separated lane. This lane is located adjacent to a road and may have a planting strip or cement wall between the lane and road. The less-experienced Type B and Type C cyclists favor the security of this type of bikeway. These are used most often for recreational use in Georgia and none are recommended in this plan.

For cyclists to be able to use their bikes for daily activities, it is necessary to provide bike racks in public areas such as schools, government buildings, parks, and commercial activity centers. Bike racks should support a bicycle in two places and prevent the wheel from tipping. All racks should be anchored so that they cannot be stolen. Racks should be located near the entrances of buildings and under cover, if possible.

The City of Hartwell has one bike facility within the city limits. State Bike Route 85/The Savannah River Run Corridor (SR 77) is currently the only officially designated route for bike riders in Hart County. This route begins in Savannah, Georgia and extends northward thru 15-counties, including Hart County, and end at the Georgia/North Carolina state lines in Rabun County. The total mileage for the route is 314 miles. In addition, there are plans under the Georgia Mountains Regional Bicycle and Pedestrian Plan to create one additional route along SR 8 in Hartwell. This route would be a connection between Hartwell and Gainesville, Georgia with possible connections on into Anderson, South Carolina.

8.3 Community Goals and Strategies

The Comprehensive Plan's Transportation Element for the City of Hartwell represents an effort to define a set of transportation programs and projects that address existing and future transportation needs within the community. The plan's recommendations will guide future transportation investments and provide mobility solutions to accommodate population and employment growth in this area.

Thoughtful goals and effective performance measures ensure a long-range, needs-based perspective that assists in effectively identifying and implementing appropriate transportation initiatives for the City of Hartwell. The goals and performance measures must be compatible in order to develop a transportation network that also addresses regional needs.

Performance measures are necessary tools in needs-based plan development because they can track performance over time and assist in identifying improvements. They provide accountability and link strategic planning to resource allocation. By defining specific performance measures, Hartwell will be able to measure the effectiveness of selected projects and programs in meeting goals. Performance measures as a package indicate the extent to which the current and recommended programs help achieve established goals.

The federal Transportation Equity Act for the 21st Century (TEA-21) emphasizes that transportation infrastructure investment should be driven by the need for improvement. The goals and performance measures established for the City of Hartwell were designed to meet the community's specific transportation needs, while simultaneously incorporating sensitivity to the transportation efforts of the region's multiple planning partners. The goals and performance measures for the area, provided in *Table 8.13* consider the objectives outlined in the GMRDC's Regional Comprehensive Plan.

**Table 8.13
Goals and Performance Measures**

Goals	Performance Measures
<ul style="list-style-type: none"> Improve accessibility and mobility of people and goods. 	<ul style="list-style-type: none"> MTPT 2025 roadway LOS C or better. Provides alternative roadway connections with capacity for high volume flows.
<ul style="list-style-type: none"> Enhance Safety 	<ul style="list-style-type: none"> Will reduce accident occurrences. Locations with significant numbers of correctable vehicle crashes. Provides additional improvements to pedestrian facilities for activity centers. Provides additional bike lanes or separated bike paths along corridors with high vehicle/bike friction.
<ul style="list-style-type: none"> Preserve and improve the existing system, environment, and quality of life. 	<ul style="list-style-type: none"> Present serviceability ratings (PSR) of 3.0 or above. Bridge sufficiency ratings above 75. Number of actively protected wetlands and historic areas protected from encroachment from transportation projects. Burdens or benefits to environmental justice communities. Number of pedestrian facilities for activity centers. Connectivity of bike facilities to regional network. Percent of area served by transit. Number of design features that encourage transit patronage.
<ul style="list-style-type: none"> Ensure multi-jurisdictional coordination to facilitate interregional connectivity and foster regional economic development. 	<ul style="list-style-type: none"> Ongoing communication between regional jurisdictions. Number of alternative roadway connections between jurisdictions with capacity for high volume flows.

Goals and Performance Measures

Four Transportation planning goals have been established for the City of Hartwell. The first goal is to improve accessibility and mobility of people and goods. The accomplishment of this goal will be measured by establishing a threshold for 2025 roadway LOS C or better and monitoring performance roadway levels of congestion. The number of alternative roadway connections with capacity for high volume flows will also serve as a measure of transportation access and mobility.

The second goal is to enhance safety. The achievement of this goal will be measured by: (1) monitoring and reducing accident rates, and (2) monitoring and reducing the number of locations with correctable vehicle crashes. Other performance measures for this goal include increasing the number of pedestrian facilities for activity centers, and the number

of miles of bike lanes, or separated bike paths along corridors with high vehicle/bike friction.

Thirdly, the City of Hartwell will preserve and improve the existing system, environment and quality of life by monitoring performance measures such as present serviceability ratings for pavement, bridge sufficiency ratings, the number of wetlands and historic areas protected from encroachment from transportation projects, and burdens on and benefits to environmental justice communities. This goal will also be measured by the number of pedestrian facilities for activity centers, connectivity of bike facilities to the regional network, the percent of area served by transit, and the number of design features that encourage transit patronage.

Finally, the fourth goal is to ensure multi-jurisdictional coordination to facilitate interregional connectivity and foster regional economic development. Achievement of this goal will be measured by the level of ongoing communication between regional jurisdictions and the number of alternative roadway connections with capacity for high volume flows.

Ensuring that the goals for the City of Hartwell are achieved requires an accurate inventory of the existing transportation infrastructure and a detailed analysis of the operating conditions and services for inventoried facilities. Both of these were conducted early in the planning process and are outlined in previous sections.

Future growth forecasts are essential for developing long-range transportation plans to determine overall needs and the level of transportation strategies required to meet those needs. Transportation planning is an ongoing process where planning factors, such as growth and the assessment of needs, are periodically monitored and reevaluated. The rapid growth in this area requires an effective monitoring and update function of the planning process. Planning assumptions and transportation strategies must be evaluated periodically, as needed.

Decision Context

As the planning process entered the project development phase, a “decision context” within which strategies would be recommended was developed. To ensure that the overall goals for the City of Hartwell are achieved, recommended programs and projects should work to achieve established goals. Whether or not the goals are successfully achieved is assessed objectively by comparing existing and future conditions, using the defined set of performance measures and thresholds.

Four primary “decision context” questions were used to examine potential projects before developing the preferred program of projects:

1. Do the strategies meet the plan’s goals and objectives?

The recommended program should demonstrate, through specific performance measures, that the plan's goals and objectives have been met.

2. Are the strategies appropriate and proportional to needs?

Specific performance measures are useful tools for evaluating plans, but may not tell the whole story. Strategies must not only be effective, but also appropriate and proportional to needs.

3. Are strategies cost-effective?

Federal law requires transportation plans to be fiscally constrained. Nevertheless, detailed scrutiny is required to ensure the best possible use of financial resources.

4. Are other options viable?

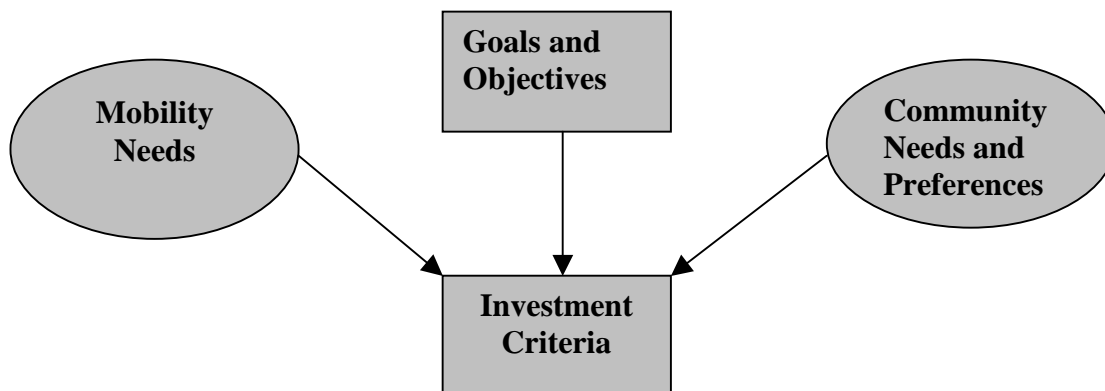
All viable options must be considered. Population and employment densities determine cost-effectiveness. System optimization improvements, such as improving intersection Geometrics and signal timing are low-cost options to alleviate localized congestion.

Investment Criteria

Investment criteria guide the transportation planning process and provide a framework for the development of programs and projects. Within the decision context, financial effectiveness analysis is conducted based on identified established investment criteria. Investment criteria ensure that the counties gain the most cost-effective improvements when developing a program of projects.

Community needs and preferences were defined through a series of discussions with community stakeholders and other public involvement efforts. Mobility needs were identified through technical analysis.

**Figure 8.4
Development of Investment Criteria**



Goals and objectives, mobility needs, and community preferences combine to define a series of six primary investment criteria:

**Figure 8.5:
Investment
Criteria:**

- | | |
|---|--|
| ③ | <i>Efficiency improvements</i> |
| ③ | <i>Mobility options</i> |
| ③ | <i>Congestion relief</i> |
| ③ | <i>Accessibility to interstates and major highways</i> |
| ③ | <i>East-west connectivity</i> |
| ③ | <i>North-south connectivity</i> |

Using previously described investment criteria; potential improvement strategies were initially identified and applied to the transportation system. Lower-cost improvements addressing system efficiency or travel demand were considered prior to more costly strategies. Where less expensive measures do not provide adequate improvement, increased system capacity solutions were considered. Finally, the package of improvements in each program category (such as roadway, transit, and bicycle/pedestrian) is evaluated to ensure that transportation improvements work together to define a fully integrated multi-modal transportation system.

Coordination with Regional Planning

The Georgia Planning Act was adopted by the General Assembly in 1989 as a means to encourage better management of growth in the booming areas of the state, while encouraging the less prosperous parts to avail themselves of opportunities for growth. The Planning Act established a coordinated planning program for the State of Georgia, which provides local governments with opportunities to plan for their future and to improve communication with their neighboring governments. The Act established a "bottom-up," comprehensive planning approach initially to be conducted at the local government level, and then at the regional and state levels. The Planning Act also assigns local governments certain minimum responsibilities to maintain "Qualified Local Government" (QLG) status, and thus, be eligible to receive certain state funding.

The cornerstone of the coordinated planning program is the preparation of a long-range comprehensive plan by each local government in the state. This plan is intended to highlight community goals and objectives as well as determine how the government proposes to achieve those goals and objectives. City and county plans are then used as the basis for a regional development plan.

Regional Development Centers (RDC) are charged with the responsibility of promoting the establishment, implementation, and performance of coordinated and comprehensive planning by municipal and county governments. The RDC is expected to plan for

conformity with minimum standards and procedures established by the Planning Act. As the designated RDC for the Georgia Mountains area, the Georgia Mountains Regional Development Center addresses regional issues and mobility needs through planning efforts that culminate in the development of the Regional Comprehensive Plan. The City of Hartwell should continue to work closely with the RDC and other municipalities and local governments in surrounding communities to ensure regional coordination in the development of these plans.

To address regional transportation planning impacts, Hart County and Hartwell must work closely with the GDOT Office of Planning and the GDOT District One Office in Gainesville, Georgia. GDOT's Office of Planning assigns specific planning resources to ensure a regional and statewide perspective in planning for Hart County. The GDOT District One Office also offers personnel and other resources to bring regional and local perspective to the transportation planning process. Transportation solutions are identified for Hart County and other counties through the development of improvement projects included in the six-year GDOT Construction Work Program (CWP) and the three-year Statewide Transportation Improvement Program (STIP).

Transportation Investment Strategies

An inventory of potential strategies was evaluated for the purpose of developing this document. These strategies have the potential to reduce congestion, increase capacity, and improve the quality of life for the City of Hartwell in the future. Programs and projects to address identified needs in the City were drawn from the three classifications presented below.

- Growth Management
- Safety and Operations
 - Traffic System Operations Optimization
 - Intersections and Interchanges
- Infrastructure Enhancements
 - Local Transit
 - Roadway Projects
 - Pedestrian and Bicycle Improvements

Growth Management

Despite the population growth projected for the City of Hartwell over the next 30 years, reduced traffic congestion and improved quality of life can be achieved by managing the type and location of growth. Planning the location of community activities and services closer to neighborhoods and one another could substantially reduce vehicle trips. Mixed land use planning on a regional, community, and activity center level will improve accessibility to major destinations. By clustering or mixing uses in a small area, community residents have access to most of their daily needs within a short multi-

purpose drive, bicycle ride, or walk from home. Schools, shopping centers, and places of employment are popular destinations and should be developed in locations providing maximum accessibility by the residents of the community or region.

An essential tool in controlling transportation demand, land use regulations such as zoning or subdivision development codes can enable growth, while reducing traffic congestion throughout Hartwell. Traffic congestion will decrease as vehicle trips shorten and transit, bicycling and walking become viable travel options as strong growth management efforts are pursued.

Safety and Operations

Non-capacity adding projects, such as safety and operational projects, can address specific location or community needs. These improvements address the need to maximize the efficiency and safety of the existing roadway network as a foundation for providing an overall transportation system that meets future demands. Safety and operational projects normally address issues such as sight distance limitations, sharp turning radii, intersection angles, and signage placement. The projects are essential to meeting the transportation needs of the community without adding roadway capacity. The safety and operations category is a key element of the recommended program of projects.

Traffic System Operations Optimization

Small-scale improvements can be incorporated into the existing roadway network to improve the flow of traffic, and they usually have a relatively short completion schedule and lower cost than roadway widening or new construction. Whenever possible, traffic operation improvements should be considered before determining the need for a widening or new construction project. Traffic operations can be optimized in many ways, including providing inter-parcel access, adding medians, closing curb cuts (driveways), adding turn, acceleration or deceleration lanes, or installing or upgrading traffic signals. Coordinated signal timing plans link together the operations of a series of traffic signals located close enough together to impact traffic conditions along an entire corridor. Developed to vary by time of day and day of week, coordinated signal timing plans improve the efficiency of signal operations along congested corridors, increasing the corridor's effective capacity by ten to fifteen percent.

Intersections and Interchanges

Another transportation improvement strategy that addresses safe and efficient travel on the roadway network is the improvement of intersections and interchanges. Many transportation conflicts resulting in congestion and safety issues are found at intersections and interchanges. Their improvement is vital to the safety and efficiency of the transportation network and builds a foundation for a network that meets future demands.

Intersection improvements can correct roadway deficiencies, increase safety, and result in increased capacity without the need to widen or make additional improvements to the roadway. Intersections with high crash rates or severe congestion should be considered for improvements. In addition to intersection improvements, the conversion of critical intersections on high volume roads into interchanges provides effective capacity increases along corridors.

Infrastructure Enhancements

The need to maximize the effectiveness of existing roadway infrastructure is critical in maintaining an efficient transportation network. Potential infrastructure improvements include transit systems, roadway projects, bike and pedestrian facilities, and other strategies requiring capital investment.

Local Transit

The implementation of multi-modal alternatives offers potentially sound solutions to meet the region's transportation needs. Demand response local transit can extend the useful life of the expensive roadway infrastructure and offer commuters a safe and convenient ride to work that, when all factors are considered, is cost-effective for most commuters.

Roadway Projects

Roadway improvements identified through the roadway analysis and public involvement process are the central feature of the long-term planning effort. Additional roadway projects that increase levels of service, reduce congestion, and improve safety become the foundation for meeting transportation needs over the planning period, but may be subjected to air quality emissions testing conducted region-wide.

The City of Hartwell is actively pursuing the development and maintenance of a road network that accommodates continuing growth. A list of current and future projects was discussed in earlier sections and in the sections: Improvement Projects and Potential Funding Sources listed below. You may also refer to Appendix A for further details.

Pedestrian and Bicycle Improvements

Used for recreation as well as transportation, pedestrian and bicycle facilities serve as an integral element of a multi-modal transportation network. Pedestrian and bicycle facilities are vital for providing links to transit, accommodating short trips between neighborhoods and community facilities, and providing circulation between land uses in denser activity centers. The connection of neighborhoods to activity centers, such as employment centers, community facilities, and retail opportunities, by way of pedestrian and bicycle facilities, will improve resident accessibility to these locations. Demand for bicycle and pedestrian facilities have grown substantially since the inception of ISTEA and TEA-21, which have provided more funding for these modes.

Georgia's Statewide Bicycle Plan, created by GDOT, proposes a statewide network of 14 named and numbered routes totaling 2,943 miles that are or will be particularly well-suited for bicycle use. As previously stated, there is only one State Bike Route located within the planning area: SBR 85/Savannah River Run. There are currently plans, through the Georgia Mountains Regional Bicycle and Pedestrian Plan to establish one new bike route within the City of Hartwell, including the potential of re-routing the existing bicycle route for SBR 85 to a safer, friendlier environment. The new route would follow SR 8 providing a directly link between Hartwell and Gainesville, Georgia with a potential extension into South Carolina- connecting to Anderson, SC.

Road Improvement Projects

All transportation improvement projects within the City of Hartwell are funded through the Georgia Department of Transportation. All projects for the county and city are planned and programmed as part of the Statewide Transportation Improvement Program (STIP). This document details the projects identified by the state through the planning process and are prioritized according to their importance and the availability of funds through the Congressional balancing process. The STIP includes Highway, Bridge, Bicycle, Pedestrian, Transportation Enhancement activities, and Public Transportation (transit) projects. Projects in the STIP emphasize the maintenance, safety, and improvement of existing transportation facilities and public transportation systems. Project related costs, such as Preliminary Engineering (PE), Right of Way (ROW), and Construction are identified for highways, and Capital and Operating costs for public transit projects. The STIP must be fiscally balanced, and include only those projects with funding available or that have a reasonable expectation of obtaining funds. The STIP covers projects to be developed over a three-year period and is updated on an annual basis. There are 3 major funding categories for Road Improvement projects under the STIP:

- 🕒 Federal Aid
- 🕒 State Funds
- 🕒 Local Funds

The Georgia Department of Transportation has begun work for the newest STIP (draft) update, which includes projects for FY 2005, 2006, and 2007. Only one project has been identified for the City of Hartwell and it is a Streetscape Project:

- ☞ Project # 0006606- Hartwell Streetscape Phase II located along Howell Street and Forest Avenue.

No further projects have been identified for City of Hartwell and the next STIP update is not planned until FY 2006. Furthermore, GDOT's 6-year Construction Work Program (CWP) identifies following long-range project:

- 🌀 Project # S007831- Resurfacing and maintenance project for East Howell Street.

For a complete list of details regarding these projects for the City of Hartwell please refer to GDOT's Statewide Transportation Improvement Program and Construction Work Program documents.

Potential Funding Sources

The most likely funding sources are identified for each project, based largely on the location of the project and responsible agencies. In some situations, it may be possible for the county or local agencies to accelerate the process of upgrading facilities by increasing local funding participation. The most likely funding sources for the City of Hartwell are listed as follows:

- ③ General Funds
- ③ Special Purpose Local Options Sales Tax (SPLOST)
- ③ Local Options Sales Tax (LOST)
- ③ FHWA, Transportation Enhancement Activities funds
- ③ FTA, Rural Public Transportation funds
- ③ State Aid, County / City contracts
- ③ Federal Lands Program, Scenic Byways

Other options, considered less likely for the City of Hartwell specifically, include:

- ③ Transit fare-box revenues
- ③ Public/private partnerships, such as Community Improvement Districts (CIDs)
- ③ Development impact fees

The City of Hartwell will continue to seek out other funding opportunities where available and will pursue all efforts to reasonably secure federal, state, and local funds, in an effort to maintain and improve the transportation network for the its citizens. However, it must be mentioned that the City of Hartwell's ability to obtain such funding hinges on favorable economic conditions and the highly competitive nature of the demands on transportation funding for such projects within the Congressional District, which serves the area and surrounding communities.

Project Phasing

Although a large number of transportation projects have been recommended, it is not practical or feasible to implement all improvements simultaneously. A phasing plan was therefore developed to provide a starting point to use in prioritizing the recommended projects for further evaluation, funding, and implementation. The prioritization was based on the level of deficiency to be mitigated or eliminated by the project, the estimated cost and the difficulty of implementation from a planning or design perspective. The three time periods used were as follows:

- ③ Short-range period: 2004 through 2007

- ③ Medium-range period: 2008 through 2014
- ③ Long-range period: 2015 through 2025

The specific phase recommended for each improvement was previously outlined in earlier discussions under Table 8.12. Also see Appendix A.

Project Implementation

In order to enhance the potential of success for this proposed plan, the following implementation guidelines are offered:

- ❧ Continue public outreach efforts for project-specific details as part of studying the project feasibility.
- ❧ Secure funding for each short-range project.
- ❧ Identify ways to utilize resources to accelerate the planning, design and construction process for the recommended projects.
- ❧ Undertake study to determine more detailed cost and design elements for the recommended projects.

OTHER TRANSPORTATION ISSUES AND SOLUTIONS

Traffic Calming

Described

Traffic calming is concerned with reducing vehicle speeds, vehicle noise, visual impacts, and sometimes through traffic volumes. Techniques consist of a series of raised speed humps, raised tables, or other devices along with appropriate traffic control signage to slow speeding and/or discourage cut-through traffic. Traffic calming techniques use various means to influence the behavior of motorists: physical, psychological, visual, social, and legal (regulatory and enforcement). Although traffic management and calming techniques are often used in areas other than residential neighborhoods, most programs are focused in residential areas, where traffic problems are more prevalent and have the most influence on the day-to-day livability of the community (see GDOT, Statewide Bicycle and Pedestrian Initiative – Pedestrian Facilities Design Guide, Updated July 25th 2003).

Inventory

Currently, no traffic calming measures employed within the city.

Needs Assessment

There are many opportunities within the City of Hartwell that could provide potential for through-traffic to traverse a low-density residential neighborhood and the City should identify prime candidates for traffic calming measures. For example, the proposed grid

network of local roads within the expanded central business district should accommodate traffic calming techniques as appropriate, since these streets are intended to be pedestrian friendly, with traffic movement being a secondary consideration.

Traffic Calming Techniques and Standards

Traffic calming techniques must meet acceptable engineering principles. Table 8.14 provides a listing and description of commonly used traffic calming devices.

**Table 8.14
Common Traffic Calming Devices**

Technique	Description
Speed humps/tables	A speed hump is wider and smoother than a speed bump, and effective in slowing cars as they approach.
Traffic circles	Circular raised islands centered within intersections.
Chicanes	Alternately placed curb extensions into the street that force motorist to drive in a serpentine pattern.
Curb bulb-outs	Curb extensions placed at mid-block locations or intersections, which narrow the street to provide visual distinction and reduce pedestrian crossing distances.
Narrower streets	Narrower streets limit the expanse of pavement visible to the driver and can be effective in slowing traffic, especially when lined with trees.
Special paving	Alternative road surfaces, such as brick, colored concrete, or special pavers, can be used at crossings, intersections, or along the sides of the street to break up the visual expanse of pavement and define areas of pedestrian travel.

Source: Georgia Department of Transportation. [Pedestrian Facilities Guidebook](#).

Travel Demand Management

Travel demand management is an organizational program that focuses on strategies to reduce automobile travel during peak periods of the day. Some of the initiatives have immediate effects while others take time to work. Usually, no single strategy by itself has the potential to materially influence traffic conditions on the road system. However, if multiple TDM strategies are pursued, a meaningful reduction in motor vehicle traffic during peak periods is possible. Effective strategies used elsewhere include: implementing staggered work hours at employment centers; shuttle services to link regional transit lines with major employers; providing incentives for urban design features that will support pedestrian and transit travel, marketing transit services and reduced/subsidized fare programs; zoning that permits multi-use developments in specified areas; ridesharing; and parking management.

Corridor Planning

The SR8/Franklin & Athens Streets, SR 51/Chandler Street, SR 77/Benson & Howell Streets, and SR172/Webb Street corridors are prime candidates for a corridor improvement plan focused on consolidating curb cuts to make access safer, and to provide visual relief to the highway commercial clutter along the roadside. The corridor plan should be completed in conjunction with or at least informed by the proposed intersection improvements along these routes as proposed in this plan.

Assessment of Land Use Regulations

Land use regulations are generally considered sufficient to implement the transportation element. New street regulations are provided in the city's land subdivision and land development ordinance.

Policies for Highways and Roads

- **Adequate sight distance.** There must be an unobstructed sight distance in both directions on all approaches at an intersection. Any object within the sight triangle that constitutes a sight obstruction should be removed or lowered, including parking, cut slopes, hedges, trees, and bushes.
- **Intersection geometry.** Intersecting roadways should cross at, or as close as practical to, a right angle (90 degrees).
- **Correct problem intersections.** Seek participation by Georgia Department of Transportation in the design and funding of improvements that will correct poor geometrics at problem intersections
- **Connectivity and direct travel.** The city supports the design of its street network so that there will be multiple connections and relatively direct routes.
- **Levels of service (LOS) standards.** Seek to maintain an overall LOS "D" for the city's arterial and collector street system.
- **Road maintenance.** Reduce the number and percentage of streets with pavement driving hazards. Hazards are large potholes, sharp bumps, drops, or tilts in the driving right-of-way. Cracks in the road shall be sealed, depressions or bumps will be corrected, water ponding of greater than one inch should be corrected, and broken pavement edges, potholes and breaks shall be promptly repaired. Local street maintenance workers should regularly examine streets and roads to rate their surface condition then determine specific maintenance and repair programs.
- **Pavement management.** Prepare a pavement management system for repairing, resurfacing, and rehabilitating existing local roads in the city.

- **Downtown CBD grid extension.** As new development or redevelopment occurs in the designated central business district, ensure that the grid pattern of local roads is extended, creating an urban block pattern as proposed in this comprehensive plan.
- **Residential neighborhood road extensions.** As properties are developed for residential uses along both sides of a roadway, a grid pattern or modified grid pattern should be established, extended, and connected with existing residential streets.
- **Traffic Calming.** Install traffic calming measures where possible, to protect low-density residential characteristics. Utilize traffic calming measures for extensions of the grid patterned road network in the central business district, as appropriate, to ensure a pedestrian friendly environment.

Policies for Pedestrians and Other Travel Modes

- **Sidewalks.** Invest in the expansion of the city's sidewalk system where possible to help create a pedestrian friendly community. Design and install sidewalk extension projects based on priority needs. Subject to funding limitations, sidewalks should be placed on both sides of arterial and collector streets.
- **Sidewalk maintenance.** Provide adequate funding, when possible, for repairs and maintenance on that portion of the sidewalk network that is the city's responsibility.
- **Pedestrian safety.** Make existing pedestrian facilities safer with streetlights, signalized pedestrian crossings (mid-block if necessary), and brightly painted crosswalks when possible.
- **Pedestrian connections to the street sidewalk system.** Individual developments, except for detached, single-family lots, shall provide direct pedestrian access ways to all public sidewalks or multi-use trails when located on a public street abutting the property to be developed, when possible.
- **Levels of service (LOS) standards.** Seek to maintain an overall LOS "C" for the pedestrian system.
- **Bicycle facilities and multi-use paths.** Explore opportunities to designate and fund bicycle lanes and bicycle paths in conjunction with other projects and programs. Work with the County School Board to coordinate the provision of bicycle facilities at existing and proposed school facilities. During the planning horizon, pursue improvements that will add bicycle travel to the city's transportation system.

- **Public transportation.** Anticipate that the Hart County Rural Transit program (US DOT - 5311) could and probably should be extended to serve Hartwell with fixed routes during the planning horizon (to 2025). The city encourages the Georgia Department of Transportation to provide park and ride lots, and implement bus services for Hart County. The city will cooperate with Hart County in providing public transportation that will link to important public facilities and activity centers within the City of Hartwell.

Other Transportation Policies

- **Municipal parking.** Construct additional municipal parking lot in the downtown central business district, to help serve development, redevelopment, and the expansion of government offices when needed.
- **Corridor Plan for SR 8, SR 51, SR 77 and SR 172.** Prepare a corridor management plan for SR 8, SR 51, SR 77, and SR 172 by 2010, to include proposals to consolidate curb cuts and driveways, improve intersections, control signs, conceal poor aesthetics, and beautify the corridor.
- **Land Use Regulations.** Periodically review, and revise as necessary, the city's land use regulations to implement the policies of this transportation element.

Conclusions

The City of Hartwell has a growing population and the associated traffic generates difficult transportation planning challenges for the area. Improvements were selected that can be implemented without changing the fundamental character of the study area. The purpose of this element was to provide information and transportation recommendations for the City of Hartwell in order to address their transportation needs. It is highly recommended that the City of Hartwell work cooperative work with GDOT and other Hart County communities to invest in a comprehensive transportation study and make every possible effort to establish a long-range transportation planning process for all of Hart County.

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